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PATENT
Attorney Docket No.: SAM-0260
Customer No.: 29344

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Jung-Lim Yoon, et al.
Serial No.: 09/974,025
Filing Date: October 10, 2001
Title: FLIP CHIP TYPE SEMICONDUCTOR DEVICE AND METHOD OF FABRICATING THE SAME

Examiner: Parekh, N.
Group Art Unit: 2811

CERTIFICATE OF MAILING UNDER 37 C.F.R. § 1.8

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10-27-03
Date

Vanessa Marakas

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

TRANSMITTAL LETTER

Sir:

Enclosed herewith for filing in the above-identified patent application please find the following listed items:

1. Response and Request for Reconsideration in response to Office Action mailed August 26, 2003; and
2. Return Postcard.

In connection with the foregoing matter, please charge any additional fees which may be due, or credit any overpayment, to Deposit Account Number 50-1798. A duplicate copy of this letter is provided for this purpose.

Respectfully submitted,

Date: October 27, 2003

Steven M. Mills
Registration Number 36,610
Attorney for Applicants

Mills & Onello LLP
Eleven Beacon Street, Suite 605
Boston, MA 02108
Telephone: (617) 994-4900
Facsimile: (617) 742-7774

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RESPONSE AND REQUEST FOR RECONSIDERATION

Sir:

This is in response to the final Office Action mailed on August 26, 2003. It is requested that the following remarks be considered.

Claims 1 and 3-5 are rejected under 35 U.S.C. §103(a) as being unpatentable over Greer (U.S. Patent Number 6,451,681). Claim 2 is rejected under 35 U.S.C. §103(a) as being unpatentable over Greer in view of admitted prior art (APA). In view of the following remarks, the rejections are respectfully traversed, and reconsideration of the rejections is requested.

In the applicants' invention, as noted in the previous paper filed by the applicants, the first and second metal lines 68a and 68b, respectively, of the invention are formed in a passivation layer 60. As noted previously, Greer fails to teach or suggest such a structure. In Greer, metal lines are formed in interlayer dielectric layers. Greer also teaches passivation layers,

different from interlayer dielectric layers, which are formed over the interlayer dielectric layers and the metal lines. Accordingly, by the explicit teachings of the reference, the Greer device includes both interlevel dielectric layers and passivation layers, and the metal lines are formed in the interlevel dielectric levels, not the passivation layers.

It appears that the Examiner is proposing an interpretation of Greer in which the passivation layer 300 of Greer teaches or suggests the applicants' claimed passivation layer. However, in contradiction to that proposition, the Office Action explicitly states that Greer teaches a first metal line formed in an insulating layer and second metal line formed in an insulating layer (see Office Action, page 2, last four lines). It also acknowledges that Greer does not teach that the insulating dielectric layer is a passivation layer (Office Action, page 3 line 8). The applicants agree with those two statements, that is, Greer teaches a first metal line in an insulating layer and a second metal line in the insulating layer, and Greer does not teach that the insulating dielectric layer is a passivation layer.

The Office Action states at page 3, lines 13-16, that the passivation layer 300 of Greer is made of conventional insulating dielectric material. This seems to suggest that because the passivation layer 300 of Greer is made of similar materials to those of interlayer insulating layers, then the insulating layers of Greer are the same as the passivation layer 300 of Greer and, therefore, they teach the applicants' claimed passivation layer. The applicants disagree with this line of reasoning. Even if they are made of the same materials, they are not passivation layers. They are not disclosed as such, and, in fact, they are explicitly distinguished from passivation layers by the Greer reference, since the Greer devices include both interlayer insulation layers and passivation layers. Where both types of layers are disclosed as being present, it cannot logically be concluded that one is the same as the other. The Greer interlayer insulators are not passivation layers. They are disclosed by Greer as being distinct from Greer's passivation layer. An interpretation that they are the same is in contradiction to the plain-language explicit teaching

of the reference.

On page 4, at lines 6-11 of the Office Action, the basis of the rejections based on Greer is set forth. It is concluded that "it would have been obvious to a person of ordinary skill in the art to incorporate the first and second metal lines formed in the passivation layer. . . and the pair of second metal lines formed in the fuse area as taught by Greer. . . ." [emphasis added] This conclusion is based on "metal lines being formed in the passivation layer." However, once again, as acknowledged in the Office Action, there is no such teaching in the Greer reference. That is, there is no teaching or suggesting whatsoever in Greer of the first and second metal lines being formed in a passivation layer. Throughout the Office Action, it is clearly stated that Greer teaches metal lines formed in an insulating layer, not a passivation layer. However, the conclusion in the Office Action is based on an assumption that Greer does teach metal lines formed in a passivation layer. The applicants believe that the premise relied upon in the Office Action in reaching the conclusion of obviousness is incorrect. There is no teaching or suggestion anywhere in Greer of metal lines being formed in a passivation layer.

The Office Action refers to the embodiment of Figure 3 in Greer as showing metal lines formed in a passivation layer. However, referring to Figure 3, the metal lines 124 shown in Figure 3 are clearly formed in the interlayer dielectric layer 118, not in the passivation layer 300. Combining this structure with the structure Figure 7, as seems to be suggested by the Office Action, in which a second metal line 124 is formed in an interlayer dielectric layer 118 and a fuse 802 is formed over the second metal line, can in no way result in a device in which metal lines are formed in a passivation layer. Neither embodiment teaches or suggests such a structure, so there is no way to combine the two structures to produce such a structure. Accordingly, it is believed that the rejection of the claims is improper.

It is believed that the claims are allowable over Greer, and reconsideration of the rejections of claims 1 and 3-5 under 35 U.S.C. §103(a) based on Greer is respectfully requested.

With regard to the rejection of claim 2, the remarks above with respect to Greer apply to this rejection as well. In addition, in the applicants' described APA in Figure 1 of the application, metal lines 10a and 10 b are formed in an interlayer insulation layer 5, not a passivation layer. The passivation layer 18 shown in Figure 1, as in Greer, is formed over metal lines and the interlayer insulation layer in which the metal lines are formed. Accordingly, Figure 1 of the application also fails to teach or suggest the invention claimed by the applicants, in the claims as originally filed. Since neither Greer nor the APA teach or suggest the invention set forth in the claims, there is no combination of the references which would provide such teaching or suggestion. Accordingly, it is believed that the claims are allowable over the cited references, and reconsideration of the rejection of claim 2 under 35 U.S.C. §103(a) based on Greer and the APA is respectfully requested.

In view of the foregoing remarks, it is believed that all claims pending in the application are in condition for allowance. Therefore, it is requested that the case be allowed and passed to issue. If a telephone conference will expedite prosecution of the application, the Examiner is invited to telephone the undersigned.

Respectfully submitted,

Date: October 27, 2003

Steven M. Mills
Registration Number 36,610
Attorney for Applicants

Mills & Onello, LLP
Eleven Beacon Street, Suite 605
Boston, MA 02108
Telephone: (617) 994-4900
Facsimile: (617) 742-7774
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